wolf races from whom they have descended; and Dr. Richardson quotes Theodat to show that the *common Indian dog* has not materially changed during two hundred and twenty years. Again, the same remark applies to the indigenous *Alco* and *Techichi* dogs of Mexico and South America, which, before their admixture with European breeds, conformed to the types or species from whence they sprung, without branching into the thirty *varieties* of Buffon, or the sixty of Brown. The dog of New-Caledoniá, in the western regions of Arctic America, cannot be regarded as an exception, for he is also a lupine animal, although too little is known of him to enable us to suggest his relative position to the other American races. The Indian dog of Florida partakes largely also of the wolf, and is supposed by Hamilton Smith to be intermediate between the common grey wolf (C. *occidentalis*) and the Newfoundland dog, *C. palmatus*. And finally, the latter animal, which belongs also to the same great dog family, is by some naturalists regarded as a cross between the Esquimaux dog and some exotic breed. To this latter question I have not yet given attention.

What is true of forms is equally true of instincts.

"It is undonbtedly true (observes Sir. C. Lyell) that many new habits and qualities have not only been acquired, in recent times, by certain races of dogs, but have been transmitted to their offspring. But in these cases it will be observed that the new peculiarities have an intimate relation to the habits of the animal in a wild state, and therefore do not attest any tendency to departure, to an indefinite extent, from the original type of the species."

The author then instances a peculiar mode in which a certain breed of dogs attack the deer on the platform of Santa Fé, in Mexico, and adds, that other European hunting dogs, though of superior strength and general sagacity, are destitute of this instinct, and are often, in consequence, killed by the deer.

I explain this phenomenon, not on the supposition of a new, but of a latent instinct, which circumstances have merely developed; and as by crossing dissimilar species or varieties of dogs, we obtain the blended and opposite lineaments of both, so, by the same process, we may combine a double or modified instinct.

In view of the preceding facts, I continue to regard the great canine race of the old and new world as constituted of many species of primordial dogs; of three, at least, (and perhaps more) species of wolves; of some accessions from the fox-tribe, and a less certain infusion of the jackal. The wolves that appear to have principally contributed to this protean family, are the *Canis lupus* of the old world, and the C. *occidentalis*, or common grey-wolf, and the C. *latrans* or prairie-wolf of America. The evidence of the fox-tribe are most conspicuously shown in the Aguara dogs of more southern latitudes.

October 15*th*.

Dr. MORTON, President, in the Chair.

Two letters were read from the Agricultural Society of Lyons, dated severally, August 10, 1849, and April 12, 1850, informing the Academy of the transmission by that Society, of Vols. 10 and 11 of its Annals.

Also a letter from the National Academy of Sciences of Lyons, dated July 2, 1850, accompanying a copy of its Memoirs for 1848–50.

Also a letter from the Linnean Society of Lyons, dated July 1, 1850, presenting the Annals of that Society for 1847–49.

A letter was also read from J. A. Grex, Esq., addressed to the Librarian, dated New York, October 3, 1850, transmitting the above works, and acknowledging the reception of a copy of the Journal, Vol. 1, new series, and of a copy of the Proceedings, for the Agricultural Society of Lyons.

Dr. Leidy presented two papers, one describing two new species of Infusorial Entozoa, and the other entitled "Descriptions of some nematoid Entozoa infesting insects," both of which were referred to the committee having charge of previous communications by Dr. Leidy, read at the late meetings of the Society, viz., Drs. Hallowell, Keller, and Zantzinger.

Dr. Leidy also made the following observations on two new genera of mammalian fossils, which he designates under the name of Eucrotaphus Jacksoni, and Archaeotherium Mortoni:

The two fragments of mammalian crania, which I exhibit this evening to the Academy, are part of those specimens a short time since presented to our Cabinet by Mr. Joseph Culbertson, of Cumberland Co., Penna., whose son obtained them from that region of country, in the vicinity of Fort Laramie on the Platte river, known as the "mauvais terres," or "bad lands," a locality, which, according to recent researches made by Dr. John Evans, is rich in such remains. Both fragments belong to new genera of mammalia. The smaller of these I have named Eucrotaphus, on account of the comparatively very large size of the temporal bones. It consists of the central portion only of the cranium, and is a little longer than the corresponding portion of the skull of the beaver (Castor fiber.) In general outline it resembles the posterior part of the cranium of the American mink, (Mustela lutreola) or more particularly that of the opossum, (Didelphis virginiana;) being broad posteriorly, cylindroid anterior to the ossa tempora, but is not as bulging at the sides as in the latter mentioned animals.

The bones still existing in the specimen consist of the right temporal, except its zygoma and posterior superior portion; a portion of the left squamous bone; the middle portion of the ossa parietalia, ossified into one, except the sagittal crest; the right para-mastoid, or paroccipital process, except the tip, with a small fragment of the occiput above it; the posterior sphenoid, somewhat mutilated; a fragment of the presphenoid; and a fragment of the basioccipital.

The most remarkable characteristics of this head are:—first, the comparatively enormous size of the squamous portion of the ossa tempora; second, the great advancement of the ossa parietalia;* third, the deep groove in the ossa parietalia just in advance of the squamous suture; fourth, the strength of origin of the zygoma; and fifth, the form of the glenoid cavity.

* I for some time hesitated before I applied this name to the symmetrical bone occupying the upper part of the cranium. I thought at first it was the frontal extending very far back, but upon considering the advanced position of the squamous portion of the temporal bone, and observing in the Erinaceus ecaudatus, a considerable prolongation forward of the ossa parietalia, I concluded that it belonged to the latter category.

It has been frequently remarked in works on anatomy, that in man, the squamous portion of the temporal bone enters into the construction of the cavity of the cranium comparatively more than in any other animal, but in the fossil before us we find it to be comparatively much greater than in man, for although the cranium is but little larger than that of the beaver, yet the squamous portion of the temporal bone in it measures over two inches in breadth antero-posteriorly, and one and three-fourths of an inch at its highest point. The summits of this portion of the two bones are not more than seven-tenths of an inch apart at the top of the head. The exterior surface of the squamous bone is very slightly convex, nearly flat, and inclines at an angle of about 50°. It is bounded postero-inferiorly by a strong, projecting ridge, the superior root of the zygoma, which commences almost vertically above and a very little behind the meatus auditorius externus. The origin or commencement of this ridge indicates considerable advancement of the squamous bone. Just within the ridge posteriorly, on a line with the meatus auditorius externus, is a large round venous foramen, the direction of which is downwards and inwards.

The base of the zygoma is remarkably strong, its direction being at first almost directly outward. The glenoid cavity is of unusually large extent, even greater than that of most known Ruminantia, and is placed immediately beneath the base of support of the zygoma, more like in man and the quadrumana than in other animals. In its direction it is transverse, with an inclination from within outward and a little upward. Posteriorly it is bounded by a comparatively enormous tuberosity separating it from the meatus auditorius externus, which at its longest part internally measures 7-10ths of an inch from the floor of the meatus, ½ an inch in thickness at the base, antero-posteriorly, on a level with the bottom of the glenoid cavity, and over 6-10ths of an inch transversely. Anteriorly the glenoid cavity is bounded by a broad transverse ridge, about two lines higher, anterior to which is a large inferior concave surface extending inward and forward to the root of the pterygoid processes and the speno-orbitar foramen. bounded on the exterior of the latter by a projecting ridge of the alisphenoid. Posterior to the posterior glenoid tuberosity, and the superior root of the zygoma, is a nearly vertical triangular excavation, bounded posteriorly by the mastoid and para-mastoid processes, and containing the meatus auditorius externus bounded below by a strong, semicircular auditory process. In a groove between the latter and the post-glenoid tuberosity, is placed a second small tuberosity or ridge about 1 line in length. Continuous with the groove just mentioned around the base of the posterior glenoid tuberosity internally, is a deep fissure, having at its bottom two glenoidal foramina. Bounding the fissure on the inside, is a large, compressed globular auditory bulla, measuring about 7-10ths of an inch vertically, and antero-posteriorly, and 6-10ths of an inch transversely. Posteriorly it abuts against the para-mastoid, process, and antero-externally it joins the alisphenoid by a prominent ridge just within the suture, separating the alisphenoid from the squamous bone. Postero-externally, bounded posteriorly by the para-mastoid, and externally by the auditory process, is a deep vertical pit at the bottom of which is a round basis of support for the styloid process of the temporal bone. Antero-internally to the auditory bulla, between it and the basisphenoid and alisphenoid, is a large oval pit, the foramen lacerum anterius, and the caroticum combined. Anterior to this, placed in the alisphenoid between

the auditory bulla and the root of the pterygoid processes is the foramen ovale. The latter mentioned basis of support to the pterygoid processes is a triangular prominence, and placed immediately on a line with it in front is a large round spheno-orbitar foramen. The basisphenoid is cylindrical in form, a little over an inch in length, and joins the presphenoid on a line with the spheno-orbitar foramina. The mutilated commencement of the presphenoid in the specimen is alone sufficient to indicate that it undergoes little diminution in diameter from that of the basisphenoid. The basioccipital is also cylindroid in form, a little broader than the basisphenoid and articulates with the latter on a line with it. The para-mastoid process or paroccipital joins the mastoid process, and affords an abutment posteriorly to the auditory bulla; it is rough and strong, and in the specimen descends two-thirds the length of the latter process, the tip being broken off. The ossa parietalia, ossified into one symmetrical bone, in advance of the ossa tempora are nearly cylindrical and antero-inferiorly join the alisphenoid. Between the ossa squamosa, the two at their narrowest portion measure only 7-10ths of an inch across. They are surmounted by a strong sagittal crest with a broad base, which in the specimen has been broken away. Laterally in advance of the squamous suture, is a remarkable and vertical, moderately deep and broad groove, the office of which I cannot conjecture. The squamous suture partakes of the serrated form.

Measurements.—From one lateral groove of the parietalia to the other measures 1 and 7-10ths of an inch; the distance between the glenoid cavities, 1 and 3-10ths inch; from the posterior face of the posterior glenoid tubercle to the anterior boundary of the anterior glenoid tubercle is 1 and 2-10ths inch; from one foramen ovale to the other 4-10ths of an inch.

Remarks.—From the very great strength of the base of support of the zygomatic process; the comparative size and concealed position of the glenoid cavity; the great size of the posterior glenoid tubercle; and the great extent of the temporal fossa, (for although it is shortened by the very rapid ascent of the superior root of the zygoma and advancement of occiput, yet it is increased in extent by the very great vertical development of the squamous bone, and in depth by the comparatively depressed or flattened surface of the latter,) the Eucrotaphus has been endowed with very great power in the muscles of mastication and great freedom of movement in the articulation of the lower jaw.

The position of this genus I have not been able satisfactorily to determine from the specimen, and we must wait, therefore, until other parts of the cranium of the animal are found before we can be able to detect its true place among the orders.

The species I have named Eucrotaphus Jacksoni, in honor of my esteemed friend Dr. Samuel Jackson, the eminent teacher of the Institutes of Medicine in the University of Pennsylvania.

The second fossil fragment, which I have named Archaeotherium, appears to have belonged to an animal not remotely allied to the Anoplotherium. The specimen is part only of the face, consisting of the middle portion of the left os maxillare superius, with the corresponding portion of the palate process, containing two premolar teeth and the alveolus for a third, a fragment of the upper part of the right os maxillare superius, the central portion of the two ossa nasi, and the anterior extremity of the left os mala. In general form this part of the face is prolonged like that of the Anoplotherium, and in size was at least one-half greater than the A. commune.

The anterior of the two teeth in the fragment appears to be the first premolar, corresponding to that tooth in the Anoplotherium by its double fang. The body of the tooth is not so broad as in the latter, and is more conical. It is convex externally from side to side, and the base of the enamel is elevated, rounded and deeply emarginate at the position corresponding to the separation of the fangs, but it projects at no place beyond the general surface of the crown except posteriorly where it forms a slight ledge or heel. Interiorly the general surface is convex, but it rather forms a central rounded longitudinal prominence from which the surface passes off slightly concave posteriorly and to an elevated line at the antero-interior border of the tooth. The enamel has been worn off at the end and along its posterior border. The second premolar is implanted in the alveolous by three fangs, two externally and the other internally. The body of the tooth is cuboidal, but is greater in its transverse measurement than antero-posteriorly. The external face is convex from side to side, and is not so long as that of the first premolar. The enamel base is strongly emarginate between the fangs, is prominent, rounded, and projects into a narrow edge anteriorly and posteriorly about $2\frac{3}{4}$ lines below its edge. The anterior surface is directed obliquely inward and forward. The crown has been worn down, leaving exposed a large, transversely oval islet of dentine, which is continuous with a similarly exposed surface antero-externally. The posterior surface is nearly transverse, and is worn into a concave depression from the pressure of the succeeding tooth in the row. The fangs are large and strong; the antero-external is implanted in the jaw obliquely upward and forward, and the postero-external vertically; the interior is larger than the other and is placed on a line posterior to the antero-external fang.

The interspace between the first and second premolars is triangular, and from the attrition upon the posterior surface of the former and anterior of the latter, has been occupied in a state of rest, by the body of the first premolar of the inferior maxilla.

Posterior to the second premolar, the sockets alone for the three fangs of the third premolar exist in the specimen.

The surface of the superior maxillary bone is convex from above downwards. The infra-orbitar foramen, from a smooth notch existing in the specimen, appears to have been placed at the junction of the superior maxillary with the malar bone. The palatine process is 3 lines in depth from the edge of the alveolus. The ossa nasi are transversely convex.

Measurements—The heighth of the superior maxillary bone from the lateral nasal suture to the edge of the alveolus on a line with a second premolar, is $3\frac{1}{2}$ inches; breadth of os nasi on the same line $\frac{5}{8}$ of an inch; breadth of first premolar at base externally $1\frac{1}{4}$ inches; transversely $\frac{1}{2}$ an inch; second premolar antero-posteriorly $\frac{3}{4}$ of an inch; transversely $\frac{7}{8}$ of an inch; heighth of face from middle nasal suture to the roof of the mouth on a line with the first premolar $2\frac{1}{4}$ inches, on a line with the third premolar 3 inches.

The species of Archaeotherium I have named Mortoni in honor of my friend Dr. Samuel George Morton, the excellent President of this Academy.